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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/700,321	01/16/2001	Martin Weston	87805-9016	4846

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EXAMINER

TRAN, TRANG U

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 04/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,321

Applicant(s)

WESTON ET AL.

Examiner

Trang U. Tran

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date: 4/3/05
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Jan. 18, 2005 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-7 are rejected under 35 U.S.C. 102(e) as being anticipate by Chen et al (US Patent No. 6,335,990 B1).

In considering claim 1, Chen et al discloses all the claimed subject matter, note

1) the claimed comprising the steps of conducting the linear filtering operations on an

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input video signal to produce filtered signals, linear filtering operation comprising the taking of a weighted sum of pixels is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55), and 2) the claimed three linear filtering operations on an input video signal to produce three filtered signals, and multiplying together said three filtered signals to produce an output video signal is met by the outputs of three linear 2-tap recursive filters multiplies the filtered value by a weighting value and then sums the product for each dimension to provide the new filtered value 708 for a particular pixel (Fig. 8, col. 7, line 13 to col. 8, line 14).

In considering claim 2, the claimed wherein said weighted sum is taken over pixels of the input video signal defined by a filter aperture is met by is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55).

In considering claim 3, the claimed wherein all three linear filtering operations have the same filter aperture is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55).

In considering claim 4, the claimed wherein for at least one linear filtering operation, the taking of a weighted sum of pixels includes the output pixel of the respective linear filtering operation is met by one of the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55).

In considering claim 6, the claimed said three filtered signals are multiplied together without intervening filtering of the three filtered signals is met by the outputs of three linear 2-tap recursive filters multiplies the filtered value by a weighting value by the

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multipliers 1006, 1008, 1010 and then sums the product for each dimension to provide the new filtered value 708 for a particular pixel (Fig. 8, col. 7, line 13 to col. 8, line 14).

In considering claim 7, the claimed wherein a further linear filtering operation is conducted in parallel on the input video signal, with the result of said further linear filtering operation being combined with the multiplication product of said three filtered signals to produce an output video signal is met by the three linear 2-tap recursive filters 1000, 1002, 1004 and the adder 1012 (Figs. 8-9, col. 7, line 13 to col. 9, line 55).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent No. 6,335,990 B1).

In considering claim 15, Chen et al disclose all the limitations of the instant invention as discussed in claim 1 above, except for providing the claimed wherein a filter is interposed between the output of the second multiplier and said combiner. The capability of using the filter is old and well known in the art. Therefore, the Official Notice is taken. Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the old and well known of using a filter is interposed between the output of the second multiplier and said combiner into Chen et al's system

in order to increase the quality of the video signal because filter is used for filtering noises.

7. Claims 5 and 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (US Patent No. 6,335,990 B1) in view of Slavin (US Patent No. 6,088,388).

In considering claim 5, Chen et al disclose all the limitations of the instant invention as discussed in claim 1 above, except for providing the claimed wherein the product of two of said filtered signals is formed and a linear filtering operation conducted on that product, prior to multiplication of said product by the third filtered signal. Slavin teaches that the present invention provides a technique for designing digital Finite Impulse Response (FIR) filters for compensation of Nyquist slope in pseudo-synchronous demodulators that has a plurality of individual FIR filters coupled in series, having a bandpass filtered intermediate frequency video signal as an input and providing a broadband video signal as an output, the individual FIR filters represent the product terms of the polynomial (Fig. 7, col. 3, line 64 to col. 4, line 17). Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the individual filters represent the product terms of the polynomial as taught by Slavin into Chen et al's system to modify the mathematics of the combined spatial and temporal filter to provide the best performance and cost balance of the system of Chen et al.

In considering claim 8, Chen et al discloses all the claimed subject matter, note 1) the claimed comprising an input terminal for receiving an input video signal, first,

second and third linear filters each connected with the input terminal and arranged to provide an output through taking a weighted sum of pixels is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55).

However, Chen et al explicitly do not disclose the claimed a first multiplier for multiplying together the respective outputs of the first and second filters, and a second multiplier for multiplying together the respective outputs of the first multiplier and the third filter to produce an output video signal.

Slavin teaches that the present invention provides a technique for designing digital Finite Impulse Response (FIR) filters for compensation of Nyquist slope in pseudo-synchronous demodulators that has a plurality of individual FIR filters coupled in series, having a bandpass filtered intermediate frequency video signal as an input and providing a broadband video signal as an output, the individual FIR filters represent the product terms of the polynomial (Fig. 7, col. 3, line 64 to col. 4, line 17).

Therefore, it would have been obvious to one ordinary skill in the art at the time of the invention to incorporate the individual filters represent the product terms of the polynomial as taught by Slavin into Chen et al's system to modify the mathematics of the combined spatial and temporal filter to provide the best performance and cost balance of the system of Chen et al.

In considering claim 9, the claimed wherein said weighted sum is taken over pixels of the input video signal defined by a filter aperture is met by is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55 of Chen et al).

In considering claim 10, the claimed wherein all three linear filtering operations have the same filter aperture is met by the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55 of Chen et al).

In considering claim 11, the claimed wherein for at least one linear filtering operation, the taking of a weighted sum of pixels includes the output pixel of the respective linear filtering operation is met by one of the three linear 2-tap recursive filters 1000, 1002, 1004 (Figs. 8-9, col. 7, line 13 to col. 9, line 55 of Chen et al).

In considering claim 12, the claimed wherein there is further provided a linear filter connected between the output of said first multiplier and the input to said second multiplier is met by the FIR F of the compensation filter (Fig. 7, col. 4, line 50 to col. 6, line 60 of Salvin et al).

In considering claim 13, the claimed wherein there is a direct connection between the output of said first multiplier and the input to said second multiplier is met by the FIR F of the compensation filter (Fig. 7, col. 4, line 50 to col. 6, line 60 of Salvin et al).

In considering claim 14, the claimed wherein the apparatus further comprises a linear filter path connected with the input terminal, and a combiner for combining the outputs of the linear filter path with the output of said second multiplier is met by the linear filter 1004 and the summer 1012 (Figs. 8-9, col. 7, line 13 to col. 9, line 55 of Chen et al).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Rahman et al. (US Patent No. 5,991,456) disclose method of improving a digital image.

Bliss et al. (US Patent No. 5,802,118) disclose sub-sampled discrete time read channel for computer storage systems.

Pele et al. (US Patent No. 4,989,087) disclose multi-predictive method to estimate the motion of the points of an electronic picture.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Trang U. Tran whose telephone number is (703) 305-0090. The examiner can normally be reached on 8:00 AM - 5:30 PM, Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (703) 305-4795. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TT
April 3, 2005


TRANG TRAN
PATENT EXAMINER